

Review of Introducing a New Normalized Cryospheric Index (NCI) to Categorize Sub-watersheds in Arid Environments by Ulloa et al. (2025)

The authors have substantially improved the manuscript by incorporating state-of-the-art datasets, including ice thickness and volume estimates. This clearly strengthens the study. The manuscript also presents valuable data that could make an important contribution and is likely worthy of publication. However, the paper still lacks a clear overall structure and better organization.

At present, several sections appear disordered, and some information is repeated across the manuscript. This affects the readability and makes it difficult to follow the main narrative and identify the key contributions of the study. In particular, the authors should do more to highlight the most relevant findings and better separate background information, methods, and results.

I also still do not see a strong justification for introducing the concepts of reservoir and reserve in this context. It is unclear what these terms add to the analysis. Why not simply refer to cryospheric landforms and snow, which seem more direct and consistent with the rest of the manuscript?

There is also some duplication and inconsistency in the organization of the regional setting, study area, methods, and results. For example, the study area is currently presented in the methodology section, while the manuscript uses previous inventories that are later presented in the results section under Glacier and Periglacial Environment Mapping. If these inventories are primarily the basis for the analysis, they would fit better in an earlier section.

In addition, there seem to be inconsistencies between the response letter and the manuscript itself. In the response letter, the authors state that they follow the Kirkbride definition, but this is not clearly reflected in the main text. They also mention that the approach was modified or adjusted to the RGIK framework, yet this is also not clearly explained in the manuscript. These conceptual and methodological aspects should be explicitly stated in the paper, not only in the response letter.

I would suggest restructuring the manuscript, particularly the regional setting and methodological framework, in the following order:

Regional setting

- Study area (currently placed in the methodology section)
- Hydrological background of the cryosphere and conceptual framework for ice-volume estimation
- Glacier and Periglacial Environment Mapping (If this section mainly summarizes previously developed inventories that form the basis of the volume estimations, it would be more appropriate to place it before the results section).

More generally, Sections 3.2 to 3.6 should be reorganized, especially if the inventories constitute the foundation for the volume estimations. At present, the logic of the manuscript is difficult to follow because the base information for the analysis is introduced too late.

Overall, the manuscript has clear potential and includes valuable information, but substantial improvements in structure, clarity, and internal consistency are still needed before publication.